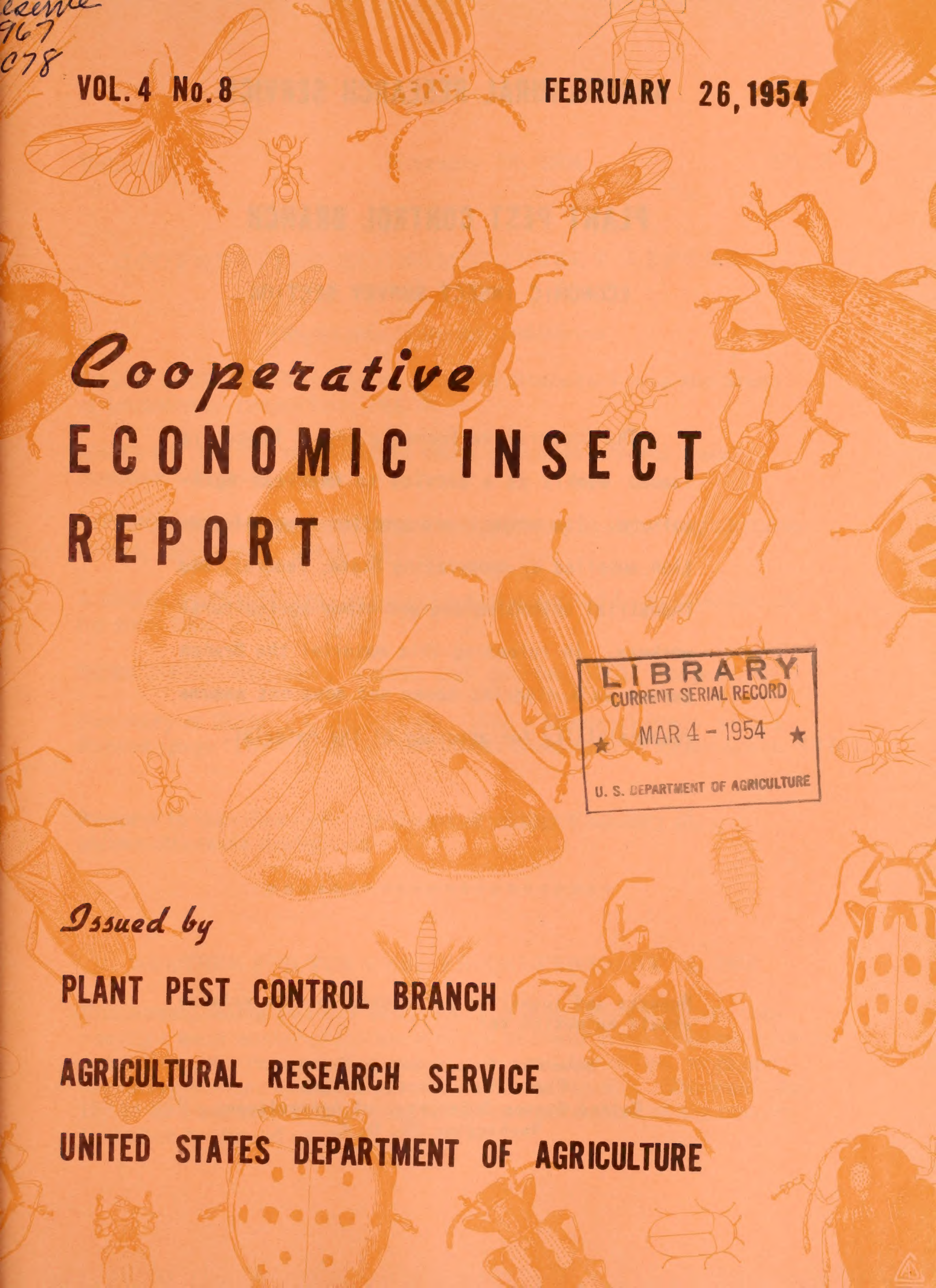
Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

eserve
967
C78

VOL. 4 No. 8 FEBRUARY 26, 1954



Cooperative ECONOMIC INSECT REPORT

LIBRARY
CURRENT SERIAL RECORD
★ MAR 4 - 1954 ★
U. S. DEPARTMENT OF AGRICULTURE

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

ECONOMIC INSECT SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Economic Insect Survey Section
Plant Pest Control Branch
United States Department of Agriculture
Washington 25, D. C.

Volume 4 February 26, 1954 No. 8

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

FALSE CHINCH BUG heavy on crops in southern Texas and areas of Louisiana. (pages 155, 159).

ARMY CUTWORM appearing in small grains in several Texas counties. (page 153).

CUTWORM and ARMYWORM moths appearing at light trap at Baton Rouge, Louisiana. (page 159).

A SPIDER MITE (Tetranychus schoenei) reported from Mississippi for first time in 1953. (page 156).

INSECT PEST situation, Hawaii, last quarter, 1953. (page 158).

Summary of INSECT CONDITIONS - 1953 - Missouri (page 160), Kansas (page 168), and cotton insect conditions in Texas (page 170).

Reports in this issue are for the week ending February 19,
unless otherwise designated

* *

WEATHER FOR THE WEEK ENDING FEBRUARY 23, 1954

Unseasonal warm weather which has persisted for the fourth consecutive week removed the snow cover at lower levels except in some extreme northern areas and resulted in swelling of tree buds and blooming of some early flowers in middle lattitudes. The week was 15° to 20° warmer than normal in the northern third of the country (Weather continued on page 159).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - GEORGIA - Heavy infestation of probably this species causing severe damage to 32 acres of small grain in Macon County. (Snodgrass). MISSOURI - None observed in southwestern area. (Kyd, Thomas). OKLAHOMA - Threatening infestation on small grains (up to 50 per linear foot) in a few fields in southern Payne County. Light (less than 10 per linear foot) general infestation in other areas of State. (Dahms). TEXAS - Occasional greenbug found in 16 of 79 fields examined in 22 counties, mostly in rank wheat or large volunteer clumps in southeast and northern parts of panhandle. Predators in many fields. A large build-up of greenbugs not expected. (Daniels, Davis).

ENGLISH GRAIN APHID (Macrosiphum granarium) - MISSOURI - Extremely light populations on wheat and barley in southwestern area. (Kyd, Thomas). OKLAHOMA - Infestation on wheat above normal in central area. In some early-seeded fields infestations range up to 75 per linear foot. (Dahms).

PEA APHID (Macrosiphum pisi) - TEXAS - Heavy infestation and severe spotted damage in one field in Wilbarger County. (Wendt, Davis).

PEA APHID and several species of LEAFHOPPERS causing limited damage in newly planted alfalfa fields in central OKLAHOMA. (Howell).

Alfalfa Pests Egg Survey, New Jersey: A fall and winter abundance survey revealed greatest egg deposition in northwestern area in Hunterdon, Warren, Somerset and Morris Counties. As many as 3-4 eggs masses per plant found in this area. Scattered heavy egg deposition found in Burlington, Salem and Gloucester Counties in southern area. (Merrill).

CLOVER LEAF WEEVIL (Hypera punctata) - MISSOURI - One to 2 small larvae per crown of alfalfa in few fields in southwestern area. About 50 percent parastized by fungus. (Kyd, Thomas).

CUTWORMS - MISSOURI - Light numbers (0 to 3 per crown) of third and fourth instars in most alfalfa fields in southwest area. (Kyd, Thomas).

ARMY CUTWORM (Chorizagrotis auxiliaris) - TEXAS - Occasional cutworms found in Wilbarger, Hardeman, and Foard Counties but no damage. Several fields of late-planted wheat badly damaged around borders in Oldham County; generally 2 to 3 cutworms per foot in borders. Isolated infestation damaging margins of barley field in Potter County. (Daniels, Davis).

A WHITE GRUB (prob. Cotinis nitida) - FLORIDA - Small number of specimens taken at 10 different locations in 20-acre pasture in Quincy area. Doubtful if any damage occurring. (May, Guthrie).

LUPINE MAGGOT (Hylemya lupini) - FLORIDA - Spring - generation pupation beginning in Quincy area. Twelve percent of stages found pupae. (Guthrie, May). GEORGIA - Light infestation on 75 acres of blue lupine in Cook County. Damage to main terminals during late fall and early winter. (Beck, Morgan).

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - MISSOURI- Seventeen percent motality of overwintering larvae in southwest area. (Kyd, Thomas).

CHINCH BUGS - FLORIDA - Infestations have persisted on St. Augustine grass throughout winter in Bradenton area. (Kelsheimer).

MITES ON GRAIN - KANSAS - To February more than 200 samples of this year's wheat from numerous fields have been examined, and eriophyid mites, presumably mostly Aceria tulipae , have been found on more than 70 percent of the samples. This mite is an important carrier of the wheat streak-mosaic disease which was responsible for damage estimated at about thirty million dollars to Kansas wheat in 1948-49. The plants were dug, potted and brought into the greenhouse, where they usually show the mosaic, if infected, in 10 to 14 days. Mites have been most abundant in samples from northern half of the State and in extreme southwest, with light infestations, or none, in samples from Ford, Hodgeman, Ness, Lane, and Scott Counties area. The southeast, south central and extreme western parts of the State north of the Arkansas River have not been surveyed. (Painter). TEXAS - No brown wheat mite (Petrobia latens) or

Penthaleus major found west of Childress and Abilene. A very few specimens of Aceria tulipae found in Foard and Hardeman Counties. (Daniels, Davis). MISSOURI - Five to 14 Penthaleus major adults per linear foot of barley and 0 to 2 per linear foot of wheat in southwest area. (Kyd, Thomas).

FRUIT INSECTS

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - Relative to the finding of an adult female at Tijuana, Jan. 22 (see CEIR, Vol. 4, No. 7, p. 130), no larvae have been found to Feb. 15 in the grove and all subsequent trap inspections since Jan. 22 have been negative. An additional 350 traps will be placed in operation from Mexicali to Tijuana, Baja California. TEXAS - Larval infestations now being found in Rio Grande Valley. For period ending Feb. 15, three properties found infested in Hidalgo County. These findings are approximately 30 days earlier than first infestations last year. (Stephenson).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NORTH CAROLINA - Injured roots of young apple trees in McDowell County. (Kirkman, Jones, Jan. 1-Feb. 19).

A PECAN BORER - NORTH CAROLINA - Damaged trunks of pecan trees in Chatham and Sampson Counties. (Jones, Scott, Jan. 1-Feb. 19).

APHIDS - NORTH CAROLINA - Eggs moderately abundant on apple trees in western part of State. (Turnipseed, Jan. 1-Feb. 19).

SPRING CANKERWORM (Paleacrita vernata) - MISSOURI - Adults began emerging in light numbers in central area, February 13. (Kyd, Thomas).

Citrus Insect Conditions: FLORIDA - Purple scale (Lepidosaphes beckii) activity increasing. While generally increasing trend expected through March, there may be a leveling off during remainder of February. Florida red scale (Chrysomphalus aonidum) hatching expected during March. Citrus red mite (Metatetranychus citri) activity increasing sharply with further increase expected. Citrus rust mite (*Phyllocoptruta oleivora*) declining on both leaves and fruit. (Pratt, Thompson, Johnson mid-Feb. Rept.). TEXAS - California red scale (*Aonidiella aurantii*) attacking oranges very heavily near Three Rivers. (Randolph).

TRUCK CROP INSECTS

FALSE CHINCH BUG (*Nysius ericae*) - TEXAS - Severe infestation Valley-wide. General on all vegetable crops. Migrating in swarms into vegetable fields. Control very difficult due to sudden heavy migration into fields. Also heavy in all irrigated vegetables in Winter Garden area. (Gibbs, Richardson, Griffith). Severely attacking clover, flax, radishes and other green leafy crops in Sinton, San Patricio County area. (Griffith).

Other Vegetable Insect Activity, Rio Grande Valley, Texas: Cutworms light to heavy in isolated areas. Wireworms medium to heavy Valley-wide. Tomato psyllid (*Paratrioza cockerelli*) heavy in one field of tomatoes in Edinburg area. Flea beetles extremely heavy in mid and upper Valley, particularly in cantaloups. Darkling beetles light to medium on several crops. Many onion fields severely damage by onion thrips (*Thrips tabaci*) where no control measures taken. Leaf miners light to medium on tomatoes and cantaloup seedlings. (Griffith).

BEET LEAFHOPPER (*Circulifer tenellus*) - ARIZONA - Reported in very low population in desert areas of southern Arizona, presumably because of lateness of winter rains. (Ariz. Coop. Rept.).

GREEN PEACH APHID (*Myzus persicae*) - GEORGIA - Light infestation on weeds adjacent to tobacco beds in Tift County. (Chamberlin).

WHITE GRUBS - GEORGIA - Killing tobacco plants in plant beds in Mitchell County. (Morgan).

CLOVER MITE (*Bryobia praetiosa*) - ARIZONA - Occurring on young cantaloup under caps in Yuma area; volunteer alfalfa in same fields infested. (Ariz. Coop. Rept.).

CITRUS MEALYBUG (Planococcus citri) - MARYLAND - Occurring on sweetpotatoes in storage at Clinton, Prince Georges County. (Bissell).

THRIPS - ARIZONA - Becoming numerous on onions in Phoenix area. (Ariz. Coop. Rept.).

APHIDS - ARIZONA - Increasing on cole crops and lettuce in Phoenix area. (Ariz. Coop. Rept.).

An undetermined insect causing severe damage to watermelons at Immokalee, FLORIDA. (Kelsheimer).

COTTON INSECTS

A SPIDER MITE (Tetranychus schoenei) - MISSISSIPPI - Collected on cotton in Washington and Holmes Counties during 1953. So far as known these are first records for this mite in Mississippi. (Sect. Ins. Aff. Cotton and Other Fib. Plts.).

FOREST INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Damaging pine stands in Chatham County. (Jones, Jan. 1-Feb. 19).

INSECTS AFFECTING MAN AND ANIMALS

COMMON CATTLE GRUB (Hypoderma lineatum) - MARYLAND - Forty-five animals examined on 3 farms in Wicomico County, Feb. 12. Twenty-six had grubs, 2 to 36 per animal. (Bissell). Ninety-one cattle examined in Howard County, Feb. 17. Of these, 57 infested with 1 to 40 grubs each. Examinations made on beef and dairy cattle on 5 farms. (Harding). TEXAS - Medium and heavy infestation over a widespread area in Hunt County. Average of 25 to 30 grubs per animal being slaughtered at Greenville. (Garner).

HOUSE FLY (*Musca domestica*) - Populations up to 3 to 10 per square foot around cattle feeding pens at Yuma. (Ariz. Coop. Rept.).

BROWN-BANDED ROACH (*Supella supellectilium*) - CALIFORNIA - Heavy infestations found in houses in Cuyama, Santa Barbara County, Jan. 19. This find is approximately 150 miles northwest of the nearest previously reported infestation at San Bernardino. (Armitage). NEW JERSEY - Recently reported in northern part of State. (Schmitt).

CATTLE GRUBS - NORTH CAROLINA - Reported from cattle in New Hanover County. (Howell, Jan. 1-Feb. 19).

STORED PRODUCT INSECTS

RED-LEGGED HAM BEETLE (*Necrobia rufipes*) - NORTH CAROLINA - Damaged cured hams in Lincoln County. (Jones, Stoudemire, Jan. 1-Feb. 19).

CADELLE (*Tenebroides mauritanicus*) - NEW JERSEY - Heavy infestation in 2,000 bushels of wheat stored in bags in Monmouth County. Unusual occurrence probably due to old flooring which allowed suitable hibernating quarters. (Merrill).

Reports indicate cool weather has kept STORED-GRAIN INSECTS in check in NORTH CAROLINA. (Insect Notes, Jan. 1-Feb. 19).

AN OSTOMID (*Tenebroides* sp.) - IDAHO - Larvae taken from samples of wheat from elevator leg at Twin Falls, Jan. 19. (Douglass).

A MAGGOT (*Chrysomyza demandata*) - MISSOURI - Moderate to heavy infestations in rotting silage in many trench silos throughout southern half of State. (Kyd, Thomas).

RECENT IMPORTANT INTERCEPTIONS AT PORTS OF ENTRY

On six occasions within the past few weeks dead or moribund larvae of *Adoxophyes orana* (F. v. R.) were intercepted on commercial shipments of cut lilac flowers from NETHERLANDS. This species is reported in literature to occur in parts of central and northern European and Southeastern Russia, and to feed on and web the leaves of 14 different genera of trees and shrubs. Previous to the interception on lilacs, it was not reported on that host. Only recently it has been found damaging the fruits of apple and pear trees in England. Shipments from Holland usually are fumigated just prior to shipping and are so certified by the Netherlands officials. Effectiveness of the treatment is verified by checking for dead or moribund larvae upon arrival in the United States. Experience has shown the fumigation to have a somewhat beneficial effect on the keeping quality of the flowers. (Ramsay).

Insect Pest Situation, Hawaii, Last Quarter, 1953: A BEETLE (Protaetia fusca) was reported from flowers of corn plants at Wailuku, Maui, in October. This represents an extension of its range from Oahu. A MOTH (Achaea janata) caused localized damage to croton at Honolulu. FULLER ROSE BEETLE (Pantomorus godmani) - A commercial planting of an acre of red ti (Cordyline terminalis)was severely damaged resulting in unmarketable foliage. A PHALAENID (Spodoptera mauritia (Boisd.)) is established in the Pearl Harbor region of Oahu. Adults are now regularly caught in a light trap operated near Barber's Point Airport, Ewa, Oahu. This is the first record of the species in Hawaii, though Laphygma exempta (Walker) has long been misidentified as Spodoptera mauritia. Spodoptera mauritia is a serious pest of rice in India and the Philippines, where it also attacks sugar cane and other grasses. First specimens were caught early in December, 1953. A WEEVIL (Sternochetus magiferae) - From July 13 to Aug. 21, seven interceptions of 39 mango seeds produced 20 weevils.

New Records:

A REDUVIID (Prob. Polididus armatissimus) - Many specimens collected in a house, Hilo, Hawaii, Sept. 10, 1953. An undetermined WEEVIL collected on Portulaca oleracea at Damon Tract, Honolulu in July 1953. Adults fairly common.

The following listed insects with their probably origin were captured aboard arriving aircraft in Honolulu during the months July through December, 1953. Identifications made by Section Insect Detection and Identification, Washington:

PHALAENIDAE: Trichoclea edwardsi Sm., Calif.; Stictoptera signifera (Wlk.), Japan; Naranga sp. prob. aenescens Moore, China or P. I.;

Leucania sp. nr. *formosana* (Btlr.), China or P.I.; PYRAUSTIDAE: *Ercta* sp. nr. *ornatalis* (Dup.), P.I.; *Dracaenura* sp., S. Pacific; *Piletocera* sp., Fiji; *Hellula* sp., Fiji; Glyphipterygidae, *Imma* sp., P.I.; *Nymphula diminutalis* (Snell), W. Pacific; CERAMBYCIDAE: Cerambycinae, genus unknown, W. Pacific; SCARABAEIDAE: *Polyphylla decemlineata* (Say), Calif.; Adoretus (*Chaetadoretus*) sp. S. Pacific; *Ataenius* sp., S. Pacific; *Popillia japonica* Newm., Japan; CHRYSOMELIDAE: *Cassida* sp. possibly *circumdata* Herbst., P.I.; *Diabrotica undecimpunctata* Mann., Calif.

ADDITIONAL NOTES - LOUISIANA - A SPIDER MITE (*Tetranychina apicalis*) noted on clover in Natchitoches and West Feliciana Parishes and on pear in Concordia. Population unusually light and appearing later than normal, probably influenced by the abnormally dry fall. FALSE CHINCH BUG (*Nysius ericae*) heavy on sandspurrey in East Baton Rouge Parish. Light population on oats in Red River Parish and alfalfa in Bossier Parish. Heavy infestation of COWPEA APHID (*Aphis medicaginis*) causing considerable damage to vetch in Rapides Parish. SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) moderate to heavy on white dutch clover, alfalfa and oats in Bossier, Red River, Rapides, Natchitoches Parishes. CUTWORMS - *Agrotis ypsilon*, *Peridroma margaritosa*, *Feltia subterranea*, and *Pseudaletia unipuncta* moths being taken in small numbers from mercury vapor light trap at Baton Rouge. (Burns).

Weather Continued

east of the Rockies where maximum temperatures ranged in the 50's and 60's on severeal days. On the 16th Lewistown, Pa. recorded high of 78°. In many sections temperatures were as high as would normally be expected in late March or early April. In Minnesota this month thus far is reported to be the warmest February since 1931 and has resulted in much saving of fuel and livestock feed. Moderate to heavy precipitations over much of the eastern half of the Nation at the beginning and end of the week generally maintained adequate surface moisture, but was still not sufficient to alleviate water shortages in parts of Iowa, Missouri and Pennsylvania. In extreme upper Mississippi Valley, the Western Great Plains and Rocky Mountain Region precipitation was very light. Water supplies still low in parts of Kansas and Oklahoma. Strong winds on severeal days caused considerable soil erosion in Western Great Plains and severe dust storms occurred in the lower Plains on the 19th. (Summary Supplied by U. S. weather Bureau).

MISSOURI

FIELD CROP INSECTS (Thomas, Kyd, & Brown): GRASSHOPPERS (*Melanoplus differentialis*, *M. femur-rubrum*, *M. mexicanus*, *M. confusus* and *M. bivittatus*) were by far the most damaging agricultural insects during 1953. Threatening to severe populations occurred throughout state except in five extreme southeastern counties. Pastures were very heavily damaged while alfalfa, red clover and certain other hay crops were reduced to such an extent that only the first cutting was worthwhile. Except for the southwest corner of State, corn received only light marginal damage. Few fields of soybeans heavily infested but all fields showed moderate to heavy marginal injury. High nymphal populations in southeast cotton area but disappeared before any appreciable damage occurred. Gardens, shrubs, ornamentals and even certain forest trees stripped of foliage in the southwest area. Very heavy egg deposition in all areas furnished potential for very severe, general infestation for 1954. EUROPEAN CORN BORER (*Pyrausta nubilalis*) overall damage was slightly below past season except in extreme northwest and southeast. Most injury from second brood causing considerable top stalk breakage but very little below ear. Heavy third brood in extreme southeast. Average 1953 overwintering population per 100 stalks was 51, as compared with 21 in 1952 and 37 in 1951.

CORN EARWORM (*Heliothis armigera*) caused severe damage over southern two-thirds of State while moderate in northern third. Heavy "bud-worm" damage indicated successful overwintering in southern area. Ninety-five percent of field corn showed earworm injury. Heavy damage also in heads of grain sorghums. BLACK CUTWORM (*Agrotis ypsilon*) - Unprecedented infestation of field corn throughout the State causing replanting of approximately 500,000 acres from one to three times. CLAY-BACKED CUTWORM (*Agrotis gladiaria*) was locally severe to corn in several southeastern counties early in June; some fields 65 percent destroyed.

VARIEGATED CUTWORM (Peridroma margaritosa) - Heavy populations (up to 7 per square foot some areas) occurred statewide in rank pastures, rank legumes, and gardens. ARMYWORM (Pseudaletia unipuncta) - The most general infestation in past ten years, however, destructive numbers only in southern two-thirds of State. Parasitism reduced numbers to non-economic levels in northern third of State. Where control measures not applied, heavy damage to barley, rye and vetch, wheat and pastures. An estimated 750,000 acres of small grains and pastures sprayed. YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) infestation quite heavy on cotton, corn, and soybeans in southeast by May 20 and spread rapidly northward on corn, although populations generally below economic levels. Numerous fields of small corn in southern area showed feeding injury to 85 percent of stand from second generation. FALL ARMYWORM (Laphygma frugiperda) infestations moderate to heavy, localized on corn, lawns and early-seeded small grains. SEED-CORN MAGGOT (Hylemya cilicrura) was unusually heavy statewide on corn, cotton, and vegetable seeds. Several instances of replanting of corn and cotton. SOUTHWESTERN CORN BORER (Diatraea grandiosella) - During first week of October, evidence of this pest was discovered in Newton and Jasper Counties. Delimiting surveys revealed ten southwestern counties infested. McDonald, Barry, Newton and Jasper Counties had damage of 20 percent or more of several fields. Barton, Vernon, Dade, Lawrence, Stone and Christian Counties had infestations of from 1 to 17 percent damage in surveyed fields. CORN LEAF APHID (Rhopalosiphum maidis) - Scattered, heavy, local infestations in corn throughout State. Grain sorghums became 100 percent infested, however little control required.

CHINCH BUG (Blissus leucopterus) populations reached destructive proportions on corn and grain sorghums in many small isolated areas but heavy damage failed to materialize. Fall survey showed Cass, Bates, New Madrid, Pemiscot Counties very severe populations (3000 or more per square foot). Vernon, Pettis, Caldwell, Scott, Stoddard and Pemiscot Counties had severe numbers (1000-3000 per square foot). Threatening populations (500-1000 per square foot) occurred in Atchison, Buchanan, Clay, Lafayette and Butler Counties. Indications of at least a partial third brood in several southeastern counties.

Heavy populations of SEED-CORN BEETLE (*Agonoderus lecontei*) in northern two-thirds of State caused moderate to heavy damage to germinating corn. WIREWORMS damage to corn slightly below past several years, although considerable some fields. CORN FLEA BEETLE (*Chaetocnema pulicaria*) populations heavy on field corn in southwest quarter of State; light to moderate in central and north Missouri. Stewart's disease much more common than usual. CORN BILLBUGS (*Calendra* spp.) generally light except along creek and river bottom land where often 10-15 percent of stand showed feeding injury. CORN ROOT WEBWORM (*Crambus caliginosellus*) was unusually abundant in the western half of the State, especially in corn fields previously in sod. Some fields reduced up to 35 percent. CORN ROOTWORMS (*Diabrotica* spp.) damage was light throughout State. CORN SAP BEETLE (*Carpophilus dimidiatus*) - Heavy populations and moderate damage to ears of corn in southern two-thirds of State. Although damage was primarily secondary, following corn earworm, several instances of ear damage where evidence of earworm injury was entirely lacking. HESSIAN FLY (*Phytophaga destructor*) damage generally very light to 1953 small grain crop. Summer stubble survey showed lowest population during past ten years. Late, dry fall weather permitted light infestations long after the "fly free date". Summer stubble survey revealed light infestation of WHEAT JOINTWORM (*Harmolita tritici*) averaging 3 percent in central and west central Missouri. GREENBUG (*Toxoptera graminum*) was very light in a few widely scattered small grain fields in southern area.

ENGLISH GRAIN APHID (*Macrosiphum granarium*) infestations moderate to heavy on wheat heads in northeast quarter of State during first of June. LEAFHOPPERS (*Empoasca* and numerous other species) heavily infested small grains in southwest counties by mid-April; generally and moderately infested in southern two--thirds of State. *Empoasca fabae* appeared early in May. MEADOW PLANT BUG (*Miris dolabratus*) - Moderate infestations in bluegrass and improved pastures throughout State. SAWFLY LARVAE were moderate to heavy in pastures and along grassy margins of small grain fields in northeast and north central Missouri. Heavier number in the wetter, ranker growing areas in pastures. Five to seven larvae per sweep not uncommon in areas of high populations.

LEGUME INSECTS (Thomas and Kyd): CLOVER LEAF WEEVIL (*Hypera punctata*) - Heavy infestation and damage throughout State except in southwest quarter. Most severe injury occurred on red clover followed by ladino, alfalfa and sweetclover. As high as 25 larvae per red clover plant. CLOVER ROOT CURCULIO (*Sitona hispidula*) populations heavy (4 to 10 per sweep) on sweet clover during May in northern two-thirds of State. SWEET-CLOVER WEEVIL (*Sitona cylindricollis*) was determined from two collections from Atchison and New Madrid Counties, thereby establishing statewide occurrence. It is believed that clover root curculio and sweet clover weevil are responsible for the serious decline in sweetclover acreage in Missouri during the past three years. PEA APHIDS (*Macrosiphum pisi*) populations generally were light in the southern third of State, moderate in central third and moderate to heavy in northern third. Intensive survey of red clover and alfalfa fields in northeast Missouri during second week of July failed to establish the presence of MEADOW SPITTLEBUG (*Philaenus leucophthalmus*) in Missouri. TARNISHED PLANT BUG (*Lygus lineolaris*) infestation were light (1 to 3 per sweep) in alfalfa and red clover. Clover root borer, lesser clover leaf weevil, garden webworm, alfalfa looper, alfalfa caterpillar, and alfalfa plant bug were also light. BLISTER BEETLES (mainly *Epicauta* spp.) caused heavy foliage damage to a few small alfalfa fields in southeast Missouri, and populations of *Epicauta* spp. very heavy in soybeans in some areas causing severe local damage in invaded fields.

LEAFHOPPERS (*Empoasca fabae* and other species) - Infestations of potato leafhopper on alfalfa remained light throughout season; however, in connection with several other species caused considerable yellowing of foliage, especially in the drier, southern two-thirds of State. BEAN LEAF BEETLE (*Cerotoma trifurcata*) infestations appeared on soybeans in southeast Missouri early in May. Heavy leaf feeding injury occurred on young plants. Populations then declined, until mid-August when increased population damaged pods. GREEN CLOVER WORM (*Plathypena scabra*) caused very light blossom or early pod damage on soybeans. THRIPS populations moderate to heavy (3-7 per leaf) during June on soybeans in southeast Missouri although characteristic silvering light. Although only light numbers of larvae of A BUTTERFLY (*Everes comyntas*) occurred in soybeans in southeast counties, considerable damage to blossoms and newly-set pod clusters.

STORED GRAIN INSECTS (Kyd & Thomas): ANGOUMOIS GRAIN MOTH (*Sitotroga cerealella*) infestations below past two years with few widely-scattered heavy local infestations. No field infestation in wheat, however, light to moderate field infestations in corn. Heavy build-up of INDIAN MEAL MOTH (*Plodia interpunctella*) and severe infestation in farm-stored wheat continued until cold weather. Under farm conditions control was difficult. Survey revealed no field infestation of RICE WEEVIL (*Sitophilus oryza*) in wheat, sanitation and fumigation reduced damage below that of previous two years. GRANARY WEEVIL (*Sitophilus granarius*) infestations generally below average. Heavy populations of SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) present in most farm storage facilities in June, however, sanitation and insecticides greatly reduced populations by harvest. CONFUSED FLOUR BEETLE (*Tribolium confusum*) was heavy locally by June but was greatly reduced by control practices during and shortly after storage of new crop. CADELLE (*Tenebroides mauritanicus*) - A few scattered heavy infestations and a general light infestation occurred in both farm and commercial storage facilities. VETCH BRUCHID (*Bruchus brachialis*) infestations were light to moderate in 1953 seed crop in extreme southeast.

FRUIT INSECTS (Enns): For the second consecutive year, CODLING MOTH (*Carpocapsa pomonella*) was the major destructive pest on apples. Its importance during this period is correlated with the almost unprecedented drought conditions. Control was generally satisfactory in 1953. A heavy carry-over of codling moth is anticipated for 1954. In general, 1953 was unfavorable for PLUM CURCULIO (*Conotrachelus nenuphar*). Probably due to extremely dry weather, summer generation failed to develop in any numbers. Very little curculio carry-over is expected for the coming season. Generally, RED-BANDED LEAF ROLLER(*Argyrotaenia velutinana*) was of very minor importance in 1953. No severe problem is expected in 1954. EUROPEAN RED MITE (*Metatetranychus ulmi*) was not a problem *per se*, but *Tetranychus* spp. were responsible for general, in some orchards severe, infestations necessitating special sprays. Control was satisfactory in most commercial orchards. ORIENTAL FRUIT MOTH (*Grapholitha molesta*) and PEACH TWIG BORER (*Anarsia lineatella*) were of minor importance. ROSY APPLE APHID (*Anuraphis roseus*) usually in conjunction with the APPLE APHID (*Aphis pomi*), was for the first time in several years, of considerable importance.

Several orchards suffered some loss although at harvest comparatively few aphid-apples were in evidence. Injury to leaves continued unusually late. If the spring of 1954 is favorable for aphids, another severe infestation may develop. FORBES SCALE (*Aspidiotus forbesi*) was destructive only in untreated orchards. The past two seasons have been notable for heavy infestations of GREEN JUNE BEETLE (*Cotinis nitida*) . Insecticidal control of adult is generally disappointing. Infestation by GRAPE BERRY MOTH (*Polychrosis viteana*) was moderate. CAT-FACING INSECTS - Chemical control was highly successful except in a few orchards where green stink bug (*Acrosternum hilare*) and leaf-footed bug (*Leptoglossus phyllopus*) caused some concern but little damage. IMPORTED CURRANT WORM (*Nematus ribesii*) was a general nuisance early in the season. GRASSHOPPERS caused considerable damage in a few young orchards. WALNUT CATERPILLAR (*Datana integerrima*), FALL WEBWORM (*Hyphantria cunea*) and YELLOW-NECKED CATERPILLAR (*Datana ministra*) were unusually abundant and destructive where no controls were undertaken. The last named was difficult to control where insecticides were used.

VEGETABLE INSECTS (Enns): Both species of HORNWORMS (*Protoparce* spp.) were abundant, particularly in southwest canning-tomato area requiring special control measures. MELON APHID (*Aphis gossypii*) and CABBAGE APHID (*Brevicoryne brassicae*) and other species particularly on spinach, turnips and tomatoes were unusually troublesome early in the season before drought occurred. CUTWORMS and ARMYWORMS were widespread and caused severe injury on numerous crops, particularly tomato transplants. BEAN LEAF BEETLES (*Cerotoma trifurcata*) were destructively numerous and generally distributed. MEXICAN BEAN BEETLE (*Epilachna varivestis*) was unusually abundant and destructive generally, but more particularly in southeast Missouri and in Kansas City area. CORN FLEA BEETLES (*Chaetocnema pulicaria*) were severe on popcorn in the St. Louis area, while other species were moderate on solanaceous crops over State. COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) , although only in moderate numbers generally, were particularly troublesome in the Kansas City area. Localized heavy infestations also present in southern and western counties. BLISTER BEETLES (mainly *Epicauta* spp.) occurred in outbreak numbers in scattered, localized areas.

In general, the southeastern area had most trouble. GRASSHOPPERS caused considerable damage and added expense for control over most of State. STINK BUGS (mainly *Thyanta custator*) were an unusual problem in southeast Missouri gardens. CORN EARWORM (*Heliothis armigera*) was a leading pest on numerous crops, but more particularly on tomatoes and sweet corn. TORTOISE BEETLES were an unusual problem on sweet potatoes in central and southeast Missouri. CABBAGEWORMS, mostly IMPORTED CABBAGEWORM (*Pieris rapae*) and CABBAGE LOOPER (*Trichoplusia ni*) were abundant and troublesome over the State. HARLEQUIN BUG (*Murgantia histrionica*) infestations on broccoli were heavy particularly in central Missouri. Insecticidal control was generally unsatisfactory. CUCUMBER BEETLES, PICKLEWORM (*Diaphania nitidalis*), and SQUASH BUGS (*Anasa tristis*) were abundant, but, in general, insecticidal control of all but the squash was very good. A severe infestation of SPIDER MITES on sweet peppers in southeast Missouri, but readily controlled. Mites also noted on beans in several areas. Chemical control generally good.

FOREST, SHADE TREE & ORNAMENTAL INSECTS (Thomas & Buchanan): GREEN-STRIPED MAPLEWORM (*Anisota rubicunda*) caused heavy defoliation of maples throughout State. First-generation WALNUT CATERPILLAR (*Datana integerrima*) caused heavy defoliation in western counties. Second generation damage was very severe through the State except in northeast corner. FALL WEBWORM (*Hyphantria cunea*) infestations were not as numerous or widespread as during past two years. ELM LEAF BEETLE (*Galerucella xanthomelaena*) infestation in southeast Missouri was extended this year to include an area from Cape Girardeau County southwest through Butler County to the Arkansas border. Damage very heavy on Chinese elm but lighter than usual on American elm. BAGWORM (*Thyridopteryx ephemeraeformis*) infestation heavy on willow and poplar in southwest Missouri, while moderate to severe infestations of evergreens, especially ornamentals, occurred statewide. SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) occurred commonly along the Mississippi River northward from St. Louis and along the Missouri River from St. Louis to Kansas City. NANTUCKET PINE MOTH (*Rhyacionia frustrana*) - Scattered, heavy infestations on Virginia and short leaf pines in the southern two-thirds of State.

Catalpa trees in southeast Missouri were heavily damaged by CATALPA SPHINX (Ceratomia catalpae). FLAT-HEADED APPLE TREE BORER (Chrysobothris femorata) caused heavy damage to oaks, maples, apples, and many other trees. Several species of POWDER POST BEETLES heavily attacked felled timber and seasoning lumber in scattered areas in Ozark region. OAK TIMBERWORM (Arrhenodes minutus) - Stave mills, distilleries and saw mills throughout the Ozark area reported quite a heavy percentage of white oak stave bolts and logs to have damage. LEAFHOPPERS (Neokolla hieroglyphica) reported to have caused considerable injury to seedling oaks in several nurseries. Tremendous numbers on willows and poplars, especially along streams. APHIDS were quite common on oaks and elms during fall.

COTTON INSECTS (Thomas & Kyd): BOLL WEEVIL (Anthonomus grandis) was the most damaging cotton pest during 1953. Heaviest seasonal damage occurred in margin around the main cotton growing area; however, only in very few instances did populations reach level requiring insecticidal treatment. COTTON APHID (Aphis gossypii) infestations were scattered throughout cotton growing area but were generally light. Light non-economic infestations of PLANT BUGS began appearing in widely scattered fields by mid-July. TWO-SPOTTED MITE (Tetranychus bimaculatus) infestations failed to build-up. BOLLWORM (Heliothis armigera) - Although corn in the cotton growing area was very heavily attacked, cotton generally escaped with only very light damage. A few earlier-planted fields had slight CUTWORM damage. No evidence of COTTON LEAFWORM (Alabama argillacea) in cotton during the season.

INSECTS AFFECTING MAN AND ANIMALS (Wingo): Control of anopheline MOSQUITOES so complete during past five years that clinical cases of malaria in Missouri are very rare. In 1953 pestiferous mosquitoes were not prevalent except during last of August and first of September when Aedes spp. appeared in fairly large numbers in central. HOUSE FLY (Musca domestica) is presently the most serious pest in the field. Little control is afforded by residual sprays and populations are extremely high. Early drought conditions in southern counties held LONE STAR TICK (Amblyomma americanum) at low levels, while AMERICAN DOG TICK (Dermacentor variabilis) was about normal.

HORN FLY (*Siphona irritans*) populations were normal to below normal. Unsprayed cattle averaged about 75-100 horn flies per adult animal for the season. About 20 percent of the 3,950,000 cattle in Missouri received sprays, which gave protection for average of 30 days after application. Due to dry weather, STABLE FLY (*Stomoxys calcitrans*) breeding was low throughout season. Heavy to medium populations of CATTLE BITING LOUSE (*Bovicola bovis*) and SHORT-NOSED CATTLE LOUSE (*Haematopinus eurysternus*) developed on approximately 20 percent of all beef animals in Missouri. COMMON CATTLE GRUB (*Hypoderma lineatum*) continued in unusually low numbers. Average of under 5 per beef animal; 1 per dairy animal. HORSE FLY populations were low. About 70 percent of swine had light to medium infestations of HOG LOUSE (*Haematopinus adventicius*). Few complaints of ITCH MITE (*Sarcoptes scabiei*) on hogs and SHEEP-TICK (*Melophagus ovinus*) on sheep.

KANSAS

Prepared by D. E. Gates, H. Knutson

Forage and Field Crop Insects: EUROPEAN CORN BORER (*Pyrausta nubilalis*) infestations did not cause serious damage in 1953. Overwintering populations in the winter 1952-53 were heaviest in the Kansas River Valley. Infestations which were heavy enough to require spraying were limited to sweet corn plantings. The infestation overwintering in 1953-54 is about the same as a year ago but is concentrated in northeastern Kansas counties north of the Kansas River. SOUTHWESTERN CORN BORER (*Diatraea grandiosella*) populations were higher than in recent years, paralleling the increase in corn in south central Kansas. It was taken as far northeast as De Soto, Kansas. WESTERN CORN ROOTWORM (*Diabrotica virgifera*) damage in 1953 was greater than any previous year. Severe damage was recorded in the northern tier of counties from Rawlins County to Washington County. Very few SOUTHERN CORN ROOTWORMS (*Diabrotica undecimpunctata howardi*) were present in the western corn rootworm area but some damage by southern corn rootworm was reported from eastern counties. HESSIAN FLY (*Phytophaga destructor*) populations continued very low.

GRASSHOPPERS (*Melanoplus mexicanus, M. differentialis*) - A shortage of mositure in eastern Kansas in 1952 and 1953 has favored a build up. Small areas had as much damage from grasshoppers as recorded in the drought years in the 1930's. The fall of 1953 was favorable for egg laying. CHINCH BUG (*Blissus leucopterus*) populations increased in 1953. Control measures were needed only in Dickinson and Flint Hill grazing area counties. CORN LEAF APHID (*Rhopalosiphum maidis*) was very abundant on sorghum. SEED-CORN MAGGOT (*Hylemya cilicrura*) caused damage to corn seed in southeastern area. ARMY CUTWORM (*Chorizagrotis auxiliaris*) Heavy flights were observed during the fall in central and western Kansas. PEA APHIDS (*Macrosiphum pisi*) and GARDEN WEBWORM (*Loxostege similalis*) caused little damage to alfalfa. SWEETCLOVER WEEVIL (*Sitona cylindricollis*) damage in 1953 was lower than in the previous three years. FALL ARMYWORM (*Laphygma frugiperda*) flights into Kansas in July resulted in considerable loss of ears of corn as result of girdling of shanks by larvae. BEET LEAFHOPPER (*Circulifer tenellus*) - The only important outbreak of curly top of sugar beets occurred this summer in the Garden City area. GREENBUGS (*Toxoptera granimum*) were not abundant enough to require control measures. A few colonies were observed in south central area late in December. WHITE GRUBS,(primarily *Cyclocephala immaculata*) caused more damage to wheat in the fall of 1953 than since 1944. Scattered fields in most of the western and central counties are infested. FALSE WIREWORMS (*Eleodes* sp.) have not been a problem in wheat sown in the fall of 1953.

Stored Grain Insects: Populations of sawtooth grain beetle, flat grain beetle, weevils and lesser grain borer in farm stored grain and grain in commercial storage was at the lowest in many years before the 1953 harvest. Receipts of weevily grain have increased since the 1953 wheat crop was harvested. INDIAN-MEAL MOTH (*Plodia interpunctella*) populations and damage has been greater in 1952 and 1953 than in previous years.

Livestock Insects: SCREW-WORMS (Callitroga hominivorax) - During 1953 infestations were limited to the Flint Hills grazing area in eastern Kansas. HOUSE FLY (Musca domestica) - The failure of DDT and other residual insecticides which have been used on farms indicate resistance strains that are not controlled by insecticides which are being used. CATTLE LICE were more abundant than usual during the winter of 1953. HORSE FLIES continued to be scarce during the 1953 dry season.

Fruit and Vegetable Insects: TWO-SPOTTED SPIDER MITE (Tetranychus bimaculatus) - Garden crops and ornamental shrubs received considerable damage.

Household Insects: BOXELDER BUG (Leptocoris trivittatus) was more abundant in fall of 1953 than normal.

COTTON INSECT CONDITIONS - 1953

TEXAS

Reported by C. R. Parencia

Insect damage to cotton in the State in general was not severe principally because of conditions of extreme drought. In some areas in which conditions were more favorable, damage from certain insects was heavy when control measures were not used. CUTWORMS (several species) destroyed stands of cotton in some fields of central area during late April and in north central area early in May. Injurious THRIPS (Frankliniella spp.) infestations occurred in the Upper Coastal, south central, central, north central, and northeast areas. Heavy infestations of BEET ARMYWORM (Laphygma exigua) occurred in Hardeman, Foard, Knox, Haskell and Jones Counties of the northwest area during the last half of June. COTTON APHID (Aphis gossypii) infestations were sufficiently heavy to warrant the use of control measures in the Coastal Bend and Upper Coastal areas early in the season but late-season injurious infestations occurred only in occasional fields of a few areas. General injurious COTTON

FLEAHOPPER (Psallus seriatus) infestations occurred in the central, north central, northeast, northwest and Cross Timbers areas but such infestations occurred only in occasional fields of all other areas with the exception of the Plains areas. TARNISHED PLANT BUG (Lygus lineolaris) infestations damaged cotton in some fields of the vetch-growing counties of the north central area and in Hale, Crosby and Lubbock Counties. DIFFERENTIAL GRASSHOPPER (Melanoplus differentialis) damaged cotton along margins of some fields in nineteen scattered counties east of a line beginning with Medina County in the south and extending to Grayson County in the north. Heavy infestations of a DIPTEROUS LEAF MINER (Liriomyza subpusilla complex) occurred in late-planted fields of some counties of the central area. Infestations disappeared early in August. BOLL WEEVIL (Anthonomus grandis) damage was less than that of 1952. Although injurious infestations occurred in occasional fields of most boll weevil areas, the heaviest infestations occurred in late-fruiting fields of the Upper Coastal and south central areas, in a few counties of the eastern area and during the latter part of the season in the north central and northeast areas. BOLLWORM (Heliothis armigera) infestations were spotted with injurious infestations occurring in some fields of most areas. The heaviest general infestations occurred in the Upper Coastal area, in the bottomlands of Burleson, Brazos and Grimes Counties of the south central area and in some counties of the northwest area. Intensive control programs were used especially in the first two areas. The first COTTON LEAFWORM (Alabama argillacea) of the season was found in Calhoun County on June 9. Although the pest occurred over the entire State by early August, buildup of populations was slow and a general infestation failed to develop. Control measures, however, were required in scattered localities in all areas with the exception of those south of the Upper Coastal area.

SPIDER MITE infestations were generally light with injurious infestations occurring in occasional fields of most areas at some time during the season. Injurious infestations of CABBAGE LOOPER (Trichoplusia ni) occurred in some fields of the western part of the State in the vicinities of Pecos, Eagle Pass and Plainview. PINK BOLLWORM (Pectinophora gossypiella) damage to cotton was considerably less than in 1952. The short growing season resulting from the extreme drought in the Lower Rio Grande Valley and in the Southwest and Coastal Bend areas was not favorable for the development of damaging infestations in many fields. Damage was confined to irrigated or late-fruiting fields in these areas, in late-planted fields in the Upper Coastal area and in the southern portion of the south central area. Build-up of populations of this insect in alarming numbers occurred very late in the season in the south central and central areas.